CLAIM AMENDMENT(S)

1. (Previously Presented) A method comprising:

receiving a number of Internet Protocol (IP) packets on a real circuit and a number of virtual circuits, wherein the number of virtual circuits are within the real circuit such that the number of Internet Protocol (IP) packets on the real circuit have an IP over Ethernet encapsulation and the number of Internet Protocol (IP) packets on the number of virtual circuits have a Point-to-Point Protocol over Ethernet encapsulation;

deencapsulating the number of Internet Protocol (IP) packets having the IP over Ethernet encapsulation;

deencapsulating the number of Internet Protocol (IP) packets having the Point-to-Point Protocol over Ethernet encapsulation; and

forwarding the number of Internet Protocol (IP) packets having the IP over Ethernet encapsulation and the Point-to-Point Protocol over Ethernet encapsulation based on an address stored in the number of Internet Protocol (IP) packets.

2-4. (Cancelled)

5. (Previously Presented) A method comprising:

receiving a number of Internet Protocol (IP) packets over Ethernet on a real circuit, each IP packet over Ethernet having an Ethernet header and an IP address;

removing the Ethernet header from the number of IP packets;

receiving a number of IP packets within a Point-to-Point Protocol (PPP) over Ethernet on at least one virtual circuit, wherein each of the number of IP packets within the PPP over Ethernet includes a PPP header, a PPP over Ethernet (PPPoE) header, an Ethernet header and an IP address, wherein the at least one virtual circuit runs within the real circuit;

removing the PPP header and the PPPoE header from the number of IP packets within the PPP over Ethernet;

removing the Ethernet header from the number of IP packets within the PPP over Ethernet; and

forwarding the number of IP packets over Ethernet and the number of IP packets within PPP over Ethernet based on the IP address.

6. (Previously Presented) The method of claim 5, wherein the number of IP packets over Ethernet and the number of IP packets within the PPP over Ethernet are encapsulated in an Asynchronous Transfer Mode (ATM) protocol layer.

7. (Previously Presented) The method of claim 6, further comprising removing the ATM protocol layer from the number of IP packets over Ethernet and the number of IP packets within the PPP over Ethernet.

8. (Previously Presented) The method of claim 5, further comprising calculating the number of IP packets within the PPP over Ethernet that are being received from the at least one virtual circuit.

9. (Previously Presented) The method of claim 8, further comprising performing rate limiting on the at least one virtual circuit based on the number of calculated IP packets within the PPP over Ethernet.

10. (Previously Presented) A method comprising:

receiving a number of different data packets over Ethernet on both a real circuit and a number of virtual circuits running within the real circuit;

recursively performing the following for each of the number of different data packets:

upon determining that a received data packet is an Internet Protocol (IP) packet over Ethernet on the real circuit, removing an Ethernet header from the received data packet and forwarding the IP packet based on an IP address stored in the IP packet; and

upon determining that a received data packet is an IP packet within a Point-to-Point Protocol (PPP) over Ethernet on one of the number of virtual circuits, removing an Ethernet header, a PPP header and a PPP over Ethernet (PPPoE) header from the data packet and forwarding the IP packet based on an IP address stored in the IP packet.

11. (Previously Presented) The method of claim 10, wherein the number of IP packets over Ethernet and the number of IP packets within the PPP over Ethernet are encapsulated in an Asynchronous Transfer Mode (ATM) protocol layer.

12. (Previously Presented) The method of claim 11, further comprising removing the ATM protocol layer from the number of IP packets over Ethernet and the number of IP packets within the PPP over Ethernet.

13. (Previously Presented) The method of claim 10, further comprising calculating the number of IP packets within the PPP over Ethernet that are being received from the at least one virtual circuit.

14. (Previously Presented) The method of claim 13, further comprising performing rate limiting on the at least one virtual circuit based on the number of calculated IP packets within the PPP over Ethernet.

15. (Previously Presented) A network element comprising:

a number of input/output (I/O) cards coupled to a number of real circuits, wherein each of the number of real circuits include at least one virtual circuit, the number of I/O cards to receive a number of Internet Protocol (IP) packets over Ethernet having an IP over Ethernet encapsulation on the real circuit, to receive a number of IP packets within a Point-to-Point Protocol (PPP) over Ethernet encapsulation on the at least one virtual circuit, to deencapsulate the number of Internet Protocol (IP) packets having the IP over Ethernet encapsulation and to deencapsulate the number of Internet Protocol (IP) packets having the Point-to-Point Protocol over Ethernet encapsulation; and

a forwarding card having an IP address table, the forwarding card to receive the number of IP packets from the number of I/O cards and to forward the IP packets based on the IP address stored in the IP packet and the IP address table.

16. (Previously Presented) The network element of claim 15, further comprising a control card having a database of configuration information, the configuration information used to configure the forwarding card and the number of I/O cards.

17. (Previously Presented) The network element of claim 15, wherein the number of I/O cards to determine the number of IP packets within the PPP over Ethernet that are being received from the at least one virtual circuit.

18. (Previously Presented) The network element of claim 15, wherein the number of I/O cards to perform rate limiting on the at least one virtual circuit based on the number of calculated IP packets within the PPP over Ethernet.

19. (Previously Presented) A machine-readable medium that provides instructions which, when executed by a machine, cause said machine to perform operations comprising:

receiving a number of Internet Protocol (IP) packets on a real circuit and a number of virtual circuits, wherein the number of virtual circuits are within the real circuit such that the number of Internet Protocol (IP) packets on the real circuit having an IP over Ethernet encapsulation and the number of Internet Protocol (IP) packets on the number of virtual circuits having a Point-to-Point Protocol over Ethernet encapsulation;

deencapsulating the number of Internet Protocol (IP) packets having the IP over Ethernet encapsulation;

deencapsulating the number of Internet Protocol (IP) packets having the Point-to-Point Protocol over Ethernet encapsulation; and

forwarding the number of Internet Protocol (IP) packets having the IP over Ethernet encapsulation and the Point-to-Point Protocol over Ethernet encapsulation based on an address stored in the number of data packets.

20-22. (Cancelled)

23. (Previously Presented) A machine-readable medium that provides instructions which, when executed by a machine, cause said machine to perform operations comprising:

receiving a number of Internet Protocol (IP) packets over Ethernet on a real circuit, each IP packet over Ethernet having an Ethernet header and an IP address;

removing the Ethernet header from the number of IP packets;

receiving a number IP packets within a Point-to-Point Protocol (PPP) over Ethernet on at least one virtual circuit, wherein each of the number of IP packets within the PPP over Ethernet

includes a PPP header, a PPP over Ethernet (PPPoE) header, an Ethernet header and an IP address, wherein the at least one virtual circuit runs within the real circuit;

removing the PPP header and the PPPoE header from the number of IP packets within the PPP over Ethernet;

removing the Ethernet header from the number of IP packets within the PPP over Ethernet; and

forwarding the number of IP packets over Ethernet and the number of IP packets within PPP over Ethernet based on the IP address.

24. (Previously Presented) The machine-readable medium of claim 23, wherein the number of IP packets over Ethernet and the number of IP packets within the PPP over Ethernet are encapsulated in an Asynchronous Transfer Mode (ATM) protocol layer.

25. (Previously Presented) The machine-readable medium of claim 24, further comprising removing the ATM protocol layer from the number of IP packets over Ethernet and the number of IP packets within the PPP over Ethernet.

26. (Previously Presented) The machine-readable medium of claim 23, further comprising calculating the number of IP packets within the PPP over Ethernet that are being received from the at least one virtual circuit.

27. (Previously Presented) The machine-readable medium of claim 26, further comprising performing rate limiting on the at least one virtual circuit based on the number of calculated IP packets within the PPP over Ethernet.

28. (Previously Presented) A machine-readable medium that provides instructions which, when executed by a machine, cause said machine to perform operations comprising:

receiving a number of different data packets over Ethernet on both a real circuit and a number of virtual circuits running within the real circuit;

recursively performing the following for each of the number of different data packets:

upon determining that a received data packet is an Internet Protocol (IP) packet over Ethernet on the real circuit, removing an Ethernet header from the received data packet and forwarding the IP packet based on an IP address stored in the IP packet; and

upon determining that a received data packet is an IP packet within a Point-to-Point Protocol (PPP) over Ethernet on one of the number of virtual circuits, removing an Ethernet header, a PPP header and a PPP over Ethernet (PPPoE) header from the data packet and forwarding the IP packet based on an IP address stored in the IP packet.

29. (Previously Presented) The machine-readable medium of claim 28, wherein the number of IP packets over Ethernet and the number of IP packets within the PPP over Ethernet are encapsulated in an Asynchronous Transfer Mode (ATM) protocol layer.

30. (Previously Presented) The machine-readable medium of claim 29, further comprising removing the ATM protocol layer from the number of IP packets over Ethernet and the number of IP packets within the PPP over Ethernet.

31. (Previously Presented) The machine-readable medium of claim 28, further comprising calculating the number of IP packets within the PPP over Ethernet that are being received from the at least one virtual circuit.

32. (Previously Presented) The machine-readable medium of claim 31, further comprising performing rate limiting on the at least one virtual circuit based on the number of calculated IP packets within the PPP over Ethernet.

33. (New) A system comprising:

a physical transmission line; and

a network element coupled to the physical transmission line configured to,

receive a number of Internet Protocol (IP) packets on a real circuit and a number of virtual circuits, wherein the real circuit is within the physical transmission line, the number of virtual circuits are within the real circuit such that the number of Internet Protocol (IP) packets on the real circuit have an IP over

Ethernet encapsulation, and the number of Internet Protocol (IP) packets on the number of virtual circuits have a Point-to-Point Protocol over Ethernet encapsulation;

deencapsulate the number of Internet Protocol (IP) packets having the IP over Ethernet encapsulation;

deencapsulate the number of Internet Protocol (IP) packets having the Point-to-Point Protocol over Ethernet encapsulation; and

forwarding the each of the deencapsulated Internet Protocol (IP) packets based on an IP address stored in it.

34. (New) The system of claim 33, wherein the physical transmission line is one of a plurality of digital subscriber lines (DSL) coupled to the network element.